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AD-740 960

CIVIL DEFENSE SYSTEMS:

SHELTERS

A DDC BIBLIOGRAPHY

DDC-TAS-72-14-I

APRIL 1972

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13. ABSTRACT This bibliography -- one in a series on Civil Defense Systems -- contains a compilation of references on Civil Defense Systems: Shelters. References included cover such topics as fallout structure evaluation; individual shelter plans for operations within the large shelter; design procedures for shelter entrance structures to resist blast overpressure and radiation effects; air distribution in shelters; storage stability of civil defense shelter rations, etc. Entries were processed into the AD data bank during the period January 1970 through January 1972. This volume updates an earlier bibliography, AD-704 500. Corporate Author-Monitoring Agency, Subject, Title, Contract, and Report Number Indexes are included.		

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Security Classification

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	Ventilation						
	Cooling & Ventilating Equipment						
	Urban Areas						
	Urban Planning						
	Underground Structures						
	Damage Assessment						
	Nuclear Explosion Damage						
	Nuclear Radiation						
	Blast						
	Costs						
	Medical Supplies						
	Food						
	Storage						
	Public Opinion						
	Acceptability						

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**CIVIL DEFENSE SYSTEMS:
SHELTERS**

A DDC BIBLIOGRAPHY

DDC-TAS-72-14-1

January 1970 - October 1971

APRIL 1972

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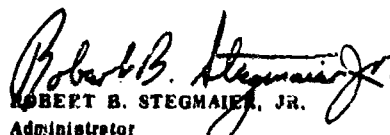
FOREWORD

This bibliography is a compilation of references on *Civil Defense Systems: Shelters*. It is one in a series of bibliographies on Civil Defense Systems. It contains 40 entries processed into the Defense Documentation Center's data bank during the period of January 1970 through January 1972 and updates an earlier bibliography, AD-704 506

Corporate Author-Monitoring Agency, Subject, Title, Contract, and Report Number Indexes are included.

BY ORDER OF THE DIRECTOR, DEFENSE SUPPLY AGENCY

OFFICIAL


ROBERT B. STEGMAIER, JR.
Administrator
Defense Documentation Center

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REPORT NUMBER.....	R-1

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-701 132 13/1 13/13 15/3
PENNSYLVANIA STATE UNIV UNIVERSITY PARK DEPT OF
ARCHITECTURAL ENGINEERING

THE FEASIBILITY OF AUGMENTING BELOW-GRADE SHELTER
HABITABILITY WITH CONDITIONED AIR. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 70 12:00P EVERETTS, JOHN, JR.; MITT,
DONALD R. MCCLAUGHLIN, EVERETT R. ;
CONTRACT: DAMC20-66-C-D175
PROJ: OCD-1233D

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COLOR OTHER THAN BLACK AND WHITE ARE AVAILABLE UNTIL STOCK
IS EXHAUSTED. REPRODUCTIONS WILL BE MADE IN BLACK AND
WHITE ONLY.

DESCRIPTORS: (•FALLOUT SHELTERS, •VENTILATION),
(•AIR CONDITIONING EQUIPMENT, FALLOUT SHELTERS),
CIVIL DEFENSE SYSTEMS, COOLING, BUILDINGS,
HUMIDITY (U)

BELOW-GRADE SHELTERS IN BUILDINGS WITH COMFORT AIR
CONDITIONING MAY BE MADE MORE HABITABLE BY UTILIZING
THE AIR CONDITIONING EQUIPMENT TO COOL ALL OR PART OF
THE VENTILATION AIR. THE VARIOUS TYPES OF AIR
CONDITIONING EQUIPMENT ARE CONSIDERED FOR THEIR
CHARACTERISTICS PERTINENT TO OPERATING UNDER
CONDITIONS OF TEMPERATURE AND HUMIDITY HIGHER THAN
NORMAL FOR COMFORT STANDARDS AND HOW THE SYSTEMS
MIGHT BE MODIFIED TO SUPPLY THE CONDITIONED AIR TO A
BELOW-GRADE SPACE. COMPUTATION PROGRAMS ARE
INCLUDED TO EXPEDITE THE CALCULATIONS OF SHELTER
CONDITIONS. (AUTHOR) (U)

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ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-701 763 15/3
OAK RIDGE NATIONAL LAB TENN

SYSTEMS ANALYSIS OF U. S. CIVIL DEFENSE VIA
NATIONAL BLAST SHELTER SYSTEMS,

(U)

MAR 70 203P HAALAND, CARSTEN M. I
REPT. NO. ORNL-TM-2457
CONTRACT: OCU-PS-64-284

UNCLASSIFIED REPORT

DESCRIPTORS: (CIVIL DEFENSE SYSTEMS, SHELTERS,
(SHELTERS, FEASIBILITY STUDIES), BLAST,
SURFACE BURST, UNDERGROUND STRUCTURES, REVETMENTS,
DOORS, PERFORMANCE (HUMAN),
REACTION (PSYCHOLOGY), NUCLEAR EXPLOSION DAMAGE,
COSTS, COST EFFECTIVENESS, POPULATION,
ALGORITHMS

(U)

IDENTIFIERS: COMPUTER ANALYSIS

(U)

THEORETICALLY FEASIBLE ALTERNATIVE NATIONAL BLAST
SHELTER SYSTEMS, INCLUDING DEPLOYMENT SCHEMES, COSTS,
AND EFFECTIVENESS AGAINST NUCLEAR ATTACKS ARE
STUDIED. VARIOUS FEASIBLE ALTERNATIVES ARE
DESCRIBED WITH A LIST OF INDEPENDENT PARAMETERS OF
FUNCTION AND OPERATION. THE USEFUL DOMAIN OF THE
PARAMETERS ARE ESTABLISHED BY INVESTIGATION OF THE
RANGE OF FEASIBILITY AND PRACTICALITY. VARIOUS
KINDS OF SYSTEMS ARE THEN THEORETICALLY CONSTRUCTED
WITHIN THE BOUNDARIES ESTABLISHED BY THE IMPOSED
LIMITATIONS. THESE SYSTEMS WERE INVESTIGATED FOR
COST, AND FOR THE NUMBER OF FATALITIES RESULTING FROM
VARIOUS SIZE NUCLEAR ATTACKS. THE COST PER SURVIVOR
ADDED WAS USED AS A MEASURE OF EFFECTIVENESS.
INVESTIGATIONS WERE PERFORMED ANALYTICALLY AND BY
DIGITAL COMPUTER. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-703 935 15/3 5/10
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF

FURTHER STUDY OF THE ADOPTION-DIFFUSION PROCESSES
IN DEVELOPMENT OF SHELTER IN NEW CONSTRUCTION. (U)

FEB 70 132P WELLISCH, J. B. ; BANCROFT,
B. H. ; HANEY, T. P. ; BORDONE, R. ;
REPT. NO. SDC-TM-4213/005/00
CONTRACT: DAH20-67-C-0106
PROJ: OCU-4832C

UNCLASSIFIED REPORT

DESCRIPTORS: (CIVIL DEFENSE SYSTEMS, SHELTERS),
(POPULATION, ATTITUDES), CALIFORNIA, ARIZONA,
QUESTIONNAIRES, STATISTICAL ANALYSIS, BUILDINGS,
HOUSING (U)
IDENTIFIERS: COLLECTIVE PROTECTION, HOME
MODIFICATION (U)

THE DOCUMENT PRESENTS THE METHODOLOGY AND FINDINGS
OF TWO STUDIES OF THE DIRECT MAIL SHELTER
DEVELOPMENT PLAN. IN ONE STUDY OGD COMPUTER
PRINTOUT DATA ARE ANALYZED; IN THE OTHER, DATA FROM
INTERVIEWS WITH OWNERS IN CALIFORNIA AND ARIZONA
ARE ANALYZED. FINDINGS FROM THE STUDIES DEMONSTRATE
THAT THERE ARE MARKED DIFFERENCES BETWEEN PUBLIC AND
PRIVATE OWNERS IN THE DIMENSIONS OF ATTITUDE,
INFORMATION LEVEL, AND ACTIONS TAKEN IN RELATION TO
THE ADOPTION OF THE INNOVATION. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDML7

AD-704 500 15/3 13/13
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

CIVIL DEFENSE SYSTEMS: SHELTERS. VOLUME 1. (U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY FEB 60-A116 69.
APR 70 265P
REPT. NO. DDC-TAS-70-36-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-668
250L.

DESCRIPTORS: (CIVIL DEFENSE SYSTEMS,
BIBLIOGRAPHIES), (SHELTERS, CIVIL DEFENSE
SYSTEMS), FALLOUT SHELTERS, RADIOACTIVE FALLOUT,
NUCLEAR EXPLOSIONS, SHIELDING, CONCRETE, FIRE
SAFETY, VENTILATION, CIVIL DEFENSE PERSONNEL,
UNDERGROUND STRUCTURES, LIFE EXPECTANCY, CONFINED
ENVIRONMENTS, FOOD, STRESS(PSYCHOLOGY),
TRAINING (U)

THE BIBLIOGRAPHY IS VOLUME 1 OF A TWO-VOLUME SET
ON CIVIL DEFENSE SYSTEMS: SHELTERS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-705 387 13/13 15/3
IIT RESEARCH INST CHICAGO ILL

DISTRIBUTION OF SLANTABLE CONSTRUCTION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAK 7U 142P STEPANEK, OTTO J. I

REPT. NO. IITRI-J6151-FR

CONTRACT: DAMC20-68-C-U153

PROJ: OCD-1634A, IITRI-J6151

UNCLASSIFIED REPORT

DESCRIPTORS: (CIVIL DEFENSE SYSTEMS, BUILDINGS).
(BUILDINGS, STATISTICAL ANALYSIS), URBAN AREAS,
SHELTERS, PREDICTIONS

(U)

THE OBJECTIVE OF THE STUDY WAS TO DEVELOP A METHOD OF DETERMINING LOCATIONS AND DESCRIPTIONS OF NEW CONSTRUCTION ANTICIPATED IN A SAMPLE STANDARD METROPOLITAN STATISTICAL AREA (SMSA) OVER THE PERIOD 1970 TO 1980. THE METHOD FIRST ESTABLISHED THE STATE OF EXISTING CONSTRUCTION BY MEANS OF A FIELD INVESTIGATION; THEN PROJECTIONS ARE MADE WITH THE USE OF TREND CURVES DEVELOPED FROM RECORDED DATA. STRUCTURE PLAN AREAS, TOTAL AREAS, AND BASEMENT AREAS ARE PRESENTED FOR VARIOUS CATEGORIES OF BUILDINGS. METHODS ARE ALSO PRESENTED FOR EXTENDING THIS TECHNIQUE TO OTHER SMSA'S OR THE ENTIRE NATION, DEPENDING UPON THE DESIRED DEGREE OF REFINEMENT. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-706 236 15/3 5/11
IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND
ANTHROPOLOGY

DIFFUSION OF FALLOUT SHELTER INNOVATIONS. A STUDY
OF PUBLIC AND HOME FALLOUT SHELTER ADOPTION IN THE
U. S. A. 1964, 1966, 1968. (U)

DESCRIPTIVE NOTE; FINAL REPT.,
FEB 70 124P KLONGLAN, GERALD E. ;
YARBROUGH, PAUL ; LUTZ, GENE M. ;
REPT. NO. RURAL SOCIOLOGY-81
CONTRACT: DAMC20-69-C-0103
PROJ: OCD-4811H

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, FALLOUT
SHELTERS), (*FALLOUT SHELTERS, PUBLIC OPINION),
STATISTICAL DATA, ATTITUDES (U)
IDENTIFIERS: COLLECTIVE PROTECTION, HOME
MODIFICATION, TRANSFER OF TECHNOLOGY (U)

THE STUDY ANALYZES THE U.S. POPULATION'S
ADOPTION AND DIFFUSION OF PUBLIC AND HOME FALLOUT
SHELTER INNOVATIONS. THE ANALYSIS IS BASED ON DATA
COLLECTED IN THE 1968 NATIONAL CIVIL DEFENSE
STUDY AND COMPARED TO THE 1964 AND 1964 NATIONAL
STUDIES, EACH SAMPLING 1500 RESPONDENTS.
(AUTHOR) (U)

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/ZOML7

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZONL7

AD-706 844 13/1 13/13 15/3
RESEARCH TRIANGLE INST DURHAM N C OPERATIONS RESEARCH AND
ECONOMICS DIV

VENTILATION KIT APPLICATION STUDY.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 68-FEB 70.
FEB 70 124P WRIGHT, MILTON D. MILL.
EDWARD L. ISANYER, CARL T. I
REPT. NO. RTI-OU-400-F
CONTRACT: DAHC20-68-C-D166
PROJ: UCU-12338, RTI-OU-400

UNCLASSIFIED REPORT

DESCRIPTORS: (CIVIL DEFENSE SYSTEMS, FALLOUT
SHELTERS), (FALLOUT SHELTERS, COOLING +
VENTILATING EQUIPMENT), VENTILATION, PUMPS,
BUILDINGS, COSTS, DEPLOYMENT

(U)

THE REPORT DESCRIBES THE DEVELOPMENT AND FIELD
TESTING OF A METHODOLOGY FOR ALLOCATING AND DEPLOYING
EMERGENCY VENTILATION EQUIPMENT TO FALLOUT SHELTERS.
THE METHODOLOGY DEVELOPED IS BASED ON SIX BASIC
SHELTER CONFIGURATIONS INTO WHICH NFSS STRUCTURES
WHICH REQUIRE ADDITIONAL VENTILATION MAY BE
CATEGORIZED. DEVELOPMENT OF THE METHODOLOGY
CONSISTED OF USING NFSS DATA FOR BUILDINGS AND
DEFINING A STANDARD SET OF VENTILATION EQUIPMENT
DEPLOYMENT PLANS FOR EACH COMBINATION OF SHELTER AND
APERTURE CONFIGURATION. THE VENTILATION EQUIPMENT
CONSIDERED IN THIS METHODOLOGY INCLUDED A 30-INCH
MANUALLY-POWERED PVK, A 36-INCH KEARNY PUMP, AND
A 72-INCH KEARNY PUMP. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

DD-708 574 13/1 13/13 15/3
STANFORD RESEARCH INST MENLO PARK CALIF

VENTILATING AND MIXING PROCESSES IN NONUNIFORM
SHELTER ENVIRONMENTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 70 126P ALLEN, FRANK C. I
CONTRACT: DAHC20-68-C-0155
PROJ: UCD-1236A, SRI-MU-7327

UNCLASSIFIED REPORT

DESCRIPTORS: (CIVIL DEFENSE SYSTEMS, FALLOUT
SHELTERS), (FALLOUT SHELTERS, VENTILATION),
MATHEMATICAL MODELS, MOISTURE, COOLING +
VENTILATING EQUIPMENT, ENVIRONMENT, EQUATIONS
IDENTIFIERS: COLLECTIVE PROTECTION

(U)

(U)

VENTILATING SYSTEMS FOR SHELTERS CAN BE SIMULATED
BY EITHER OF TWO ANALYTICAL MODELS. THE FIRST, THE
'ISOSTATE' MODEL, IS BASED ON THE ASSUMPTION THAT THE
ENVIRONMENT IS SPATIALLY UNIFORM. THIS STATE OF
UNIFORMITY CAN BE APPROACHED ONLY WITH A SYSTEM THAT
INCLUDES DISTRIBUTION DUCTWORK AND DIFFUSION OUTLETS.
THE SECOND, THE NONISOSTATE OR 'VARISTATE' MODEL,
IS BASED ON THE INCREMENTAL TRANSFER OF METABOLIC
HEAT AND MOISTURE TO THE AIR AS IT STREAMS THROUGH AN
OCCUPIED SPACE. THE VARISTATE MODEL IS ASSOCIATED
WITH NONUNIFORM ENVIRONMENTS AND SYSTEMS THAT DO NOT
DISTRIBUTE AIR. EQUATIONS ARE DERIVED FOR
VENTILATING AND MIXING PROCESSES AND FOR VARIABLE
PARAMETERS. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-711 118 15/3 5/11
PITTSBURGH UNIV PA DEPT OF SOCIOLOGY

THE PUBLIC'S PERCEPTION OF LOCAL CIVILIAN DEFENSE
EFFORTS AND FACILITIES. (U)

MAR 70 41P COHEN, PEARL B. I
CONTRACT: DAMC20-67-C-0122
PROJ: OCU-48128

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SUPPLEMENTARY NOTE: ONE IN A SERIES OF REPORTS ON
AMERICAN'S VIEWS ABOUT CIVIL DEFENSE ISSUES.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS; *PUBLIC
OPINION); QUESTIONNAIRES, REVIEWS, FALLOUT
SHELTERS, NUCLEAR WARFARE (U)

AN OVERWHELMING MAJORITY OF AMERICANS INDICATED
IN JUNE 1968 THAT THE COUNTRY WOULD NOT BE ENGAGED
IN A NUCLEAR WAR WITHIN THE NEXT FIVE YEARS. THE
HIGHER THE SOCIO-ECONOMIC CLASS, THE MORE OPTIMISM
PREVAILED. CONSEQUENTLY PUBLIC INTEREST IN CIVIL
DEFENSE AND RELEVANT INDIVIDUAL ACTIVITY WAS LOW.
ALTHOUGH PEOPLE WERE MORE CERTAIN OF WHERE SHELTER
WOULD BE SOUGHT IF A NUCLEAR ATTACK OCCURRED WHILE AT
WORK RATHER THAN AT HOME, FEW PEOPLE HAD GIVEN THE
MATTER SERIOUS THOUGHT. MOST CITIZENS KNEW NOTHING
OF WHAT WAS BEING ACCOMPLISHED BY CIVIL DEFENSE
OFFICERS ON THE LOCAL LEVEL. PEOPLE APPEARED
UNCONCERNED AND REFUSED GENERALLY TO EVALUATE LOCAL
CIVIL DEFENSE PROGRAMS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-712 365 6/8 15/3
GEORGIA EXPERIMENT STATION EXPERIMENT

STORAGE STABILITY OF CIVIL DEFENSE SHELTER
RATIONS.

(U)

DESCRIPTIVE NOTE: ANNUAL REPT. NO. 8, 1 JUL 69-30 JUN
70,

JUN 70 105P CECIL, SAM R. :
REPT. NO. 153-VIII-GES
CONTRACT: DAMC20-69-C-U415
PROJ: UCU-1312C, UGA-ST-1-53

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO ANNUAL REPT. NO. 7, AD-
690 209.

DESCRIPTORS: (*FOOD, STORAGE), (*FALLOUT
SHELTERS, FOOD), CIVIL DEFENSE SYSTEMS, CEREALS,
CARBOHYDRATES, STABILITY, TEMPERATURE, MOISTURE,
CONTAINERS, PH, ODORS, ACCEPTABILITY
IDENTIFIERS: *SHELTER RATIONS, FLAVOR

(U)

(U)

A STORAGE STUDY WAS CONDUCTED OVER A SEVEN-YEAR
PERIOD TO DETERMINE THE STABILITY OF REPRESENTATIVE
TYPES OF CIVIL DEFENSE SHELTER RATIONS. AT THE
BEGINNING OF THIS PERIOD, 10 CEREAL ITEMS WERE
DEPOSITED IN STORAGE OVER AN INTERVAL OF FOUR MONTHS,
AND 3 CARBOHYDRATE SUPPLEMENTS WERE STORED ABOUT A
YEAR LATER. DETERMINATIONS WERE ALSO MADE OF THE
STABILITY OF PACKAGING MATERIALS IN WHICH THE RATIONS
WERE STORED. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-713 017 13/13 13/12 15/3
IIT RESEARCH INST CHICAGO ILL

FIRE LABORATORY TESTS. PHASE I.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

SEP 70 44P WATERMAN, THOMAS E. I

CONTRACT: DAMC20-70-C-0206

PROJ: UCD-1135A; IITRI-J6183

UNCLASSIFIED REPORT

DESCRIPTORS: (*FALLOUT SHELTERS, *FIRE SAFETY),
(*TEST FACILITIES, CONSTRUCTION), CIVIL DEFENSE
SYSTEMS, PANELS(STRUCTURAL), REINFORCED
CONCRETE, CONSTRUCTION MATERIALS, GASES, HEAT,
TEMPERATURE SENSITIVE ELEMENTS, VENTS, TEST
METHODS

(U)

THE PROGRAM REPORTED HEREIN HAS THE OBJECTIVE OF PROVIDING A VERSATILE, REUSEABLE FIRE TEST FACILITY FOR EVALUATING THE FLOW OF HEAT AND FIRE GASES INTO UNSEALED BASEMENT SHELTERS. INCLUDED IN THE FIRST YEAR OF EFFORT WERE THE CONSTRUCTION AND GENERAL INSTRUMENTATION OF THE FACILITY AS WELL AS THE CONDUCT OF AN INITIAL PROGRAM OF TESTS. BY PROVIDING A FULL-SCALE STRUCTURE HAVING MANY OF THE CONTROLLED FEATURES OF LABORATORY EXPERIMENTATION, THE FACILITY IS ADAPTABLE TO SYSTEMATIC STUDY OF VARIOUS PARAMETERS, AS WELL AS FOR SPOT CHECKING RESULTS OF THEORETICAL OR SMALL-SCALE LABORATORY STUDIES. LIMITED RESULTS TO DATE INDICATE THAT DEBRIS FIRES CONTAINED WITHIN THE STRUCTURAL INTERIOR DO NOT TEND TO DIRECT TOXIC GASES TOWARD NEARBY UNDO VENT LOCATIONS. HOWEVER, THE HEATING CAUSED BY THE DEBRIS FIRE OF A LIGHTLY PARTITIONED RESIDENTIAL OCCUPANCY ADDED A HEAT LOAD THROUGH 12 IN. OF CONCRETE TO THE BASEMENT SHELTER EQUAL TO THAT PRODUCED BY THE OCCUPANTS. (AUTHOR)

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UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-714 304 5/3 15/6 15/3
URS RESEARCH CO SAN MATEO CALIF

DAMAGE TO THE DRUG INDUSTRY FROM NUCLEAR
ATTACK AND RESULTING REQUIREMENTS FOR REPAIR
AND RECLAMATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 70 182P STAACKMANN, HILTON ; VAN HORN,
WILLIAM M. ; FOGEL, CARL R. ;
REPT. NO. URS-796-4
CONTRACT: DAMC20-70-C-0268
PROJ: UCD-3311D

UNCLASSIFIED REPORT

DESCRIPTORS: (•INDUSTRIAL PLANTS, NUCLEAR EXPLOSION
DAMAGE), (•NUCLEAR WARFARE, •INDUSTRIES),
(•DRUGS, INDUSTRIAL PLANTS), MATHEMATICAL
MODELS, CIVIL DEFENSE SYSTEMS, RECOVERY,
MAINTENANCE, COSTS, PENICILLINS, SULFON
COMPOUNDS, MANAGEMENT PLANNING
IDENTIFIERS: DRUG INDUSTRY, POST ATTACK
OPERATIONS, PREATTACK PLANNING

(U)

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THE STUDY IDENTIFIES THE PROCESSES AND EQUIPMENT
COMMONLY USED BY INDUSTRIES OF THE DRUG GROUP,
SELECTS DRUGS REPRESENTATIVE OF THOSE DEEMED TO BE
LIFESAVING IN THE POSTATTACK PERIOD, ESTIMATES DAMAGE
TO DRUG INDUSTRY EQUIPMENT RESULTING FROM NUCLEAR
WEAPON ATTACK, AND ESTIMATES THE CONSEQUENT REPAIR
REQUIREMENTS. (AUTHOR)

(U)

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AD-714 306 13/1 13/13 15/3
GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL
AMERICAN RESEARCH DIV

SHELTER OCCUPANCY STUDIES OF VENTILATOR
UTILIZATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 68-JUN 69,
JUL 70 225P ANDERSON, J. A. 1JAGO, A.
G. FRIEDMAN, R. C. 1
REPT. NO: GARD-1480-F
CONTRACT: DAMC20-68-C-U123
PROJ: OCD-15228

UNCLASSIFIED REPORT

DESCRIPTORS: (•FALLOUT SHELTERS, VENTILATION),
(•CIVIL DEFENSE SYSTEMS, FALLOUT SHELTERS),
COOLING + VENTILATING EQUIPMENT, INSTRUCTION
MANUALS, MANAGEMENT ENGINEERING,
PERFORMANCE (HUMAN), ASSEMBLING, CONFINED
ENVIRONMENTS
IDENTIFIERS: •SHELTER MANAGEMENT

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(U)

THE REPORT DESCRIBES THREE SHELTER OCCUPANCY
EXPERIMENTS DESIGNED TO INVESTIGATE SHELTER
MANAGEMENT PROBLEMS INVOLVING SHELTEREE NEEDS AND
RESPONSES, CONTROL OF THE SHELTER ENVIRONMENT,
SHELTER ORGANIZATION, AND THE OPERATION OF SHELTER
VENTILATION EQUIPMENT. RECOMMENDATIONS FROM THE
THREE HABITABILITY STUDIES MODIFIED BOTH VENTILATOR
DESIGN AND INSTRUCTION MATERIAL. THE FINAL VERSION
OF THE ASSEMBLY, DEPLOYMENT AND OPERATING
INSTRUCTIONS ARE INCLUDED IN THE REPORT.
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-715 405 13/1 13/13 15/3
GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL
AMERICAN RESEARCH DIV

AIR DISTRIBUTION IN SHELTERS DUE TO KEARNY
PUMPS AND PEDAL VENTILATORS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 30 JAN 69-28 FEB 70,
AUG 70 101P HATHMANN, CARL E. I
REPT. NO. GARD-1476-1-F
CONTRACT: DAMC20-68-C-0123
PROJ: OCU-1217C

UNCLASSIFIED REPORT

DESCRIPTORS: (* COOLING + VENTILATING EQUIPMENT,
PUMPS), (*FALLOUT SHELTERS, VENTILATION),
CIVIL DEFENSE SYSTEMS, GAS FLOW, AIR, TESTS

(U)

IDENTIFIERS: *KEARNEY PUMPS, *PEDAL VENTILATORS,
EVALUATION

(U)

THE REPORT DESCRIBES THE RESULTS OF EVALUATING THE
AIR-MOVING CAPABILITIES OF THE KEARNY PUMPS IN
BOTH FLOW-THROUGH AND DEAD-END ROOM APPLICATION.
SPECIFIC RECOMMENDATIONS FOR THE UTILIZATION OF THE
PUMP ARE INCLUDED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-715 416 13/13 15/3
APPLIED PARKING TECHNIQUES INC RESTON VA

SHELTER POTENTIAL IN PARKING GARAGES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

NOV 7J 211P MCGAVIN, CHARLES T. I
REPT. NO. APT-1170
CONTRACT: DAHC20-69-C-0414
PROJ: OCU-16248

UNCLASSIFIED REPORT

DESCRIPTORS: (*SHELTERS, URBAN AREAS), (*CIVIL
DEFENSE SYSTEMS, FEASIBILITY STUDIES), SITE
SELECTION, CONSTRUCTION, DESIGN, DISTRICT OF
COLUMBIA, LOUISIANA, CALIFORNIA, RHODE ISLAND,
FALLOUT SHELTERS

(U)

IDENTIFIERS: *PARKING GARAGES, NEW
ORLEANS(LOUISIANA), SAN
JOSE(CALIFORNIA), PROVIDENCE(RHODE
ISLAND)

(U)

THE OBJECTIVE OF THE STUDY WAS TO PRESENT PERTINENT
FACTUAL DATA ON FIVE SELECTED CITIES WHICH WILL
PERMIT THE OFFICE OF CIVIL DEFENSE TO EVALUATE
PARKING GARAGES AS POTENTIAL SHELTER SYSTEMS. IN
EACH CITY AN INVESTIGATION WAS MADE OF THE PARKING
CAPACITY GAINS OF THE PAST BY TYPE OF FACILITY. A
STUDY WAS MADE OF THE FORCES OF CHANGE WHICH WILL
AFFECT THE RATE OF PARKING DEVELOPMENT DURING THE
DECADE 1970 TO 1980. A PROJECTION WAS MADE OF THE
NUMBER OF SQUARE FEET OF PARKING SPACE WHICH CAN
FEASIBLY BE BUILT BY 1980 IN THE CENTRAL AREAS OF THE
CITIES STUDIED. AND A BREAKDOWN WAS MADE OF THE
DIVISION OF SPACE BETWEEN ABOVE-GROUND AND BELOW-
GROUND PARKING FACILITIES. INCLUDED IN THE STUDY
WAS AN INVESTIGATION OF NEW TECHNIQUES OF DESIGN,
LOCATION, CONSTRUCTION AND OPERATION WHICH MAY BE
USED TO SLANT FUTURE PARKING DEVELOPMENT TO DUAL
PURPOSE SHELTER ADVANTAGE. THE AUTHOR MAKES
ECONOMIC FEASIBILITY STUDIES OF SEVERAL FACILITIES
AND ESTIMATES THE DAYTIME AND NIGHTTIME POPULATION
LOCATED WITHIN 3/4 MILE OF THE GARAGES.
(AUTHOR)

(U)

UNCLASSIFIED

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOML7

AD-715 422 18/6 18/8 15/3
ILLINOIS UNIV URBANA

A STUDY OF THE PENETRATION OF GAMMA
RADIATION THROUGH THIN SLABS ORIENTED AT
RIGHT ANGLES TO EACH OTHER.

(U)

SEP 70 126P MORRIS, E. E. I
REPT. NO. NR55-14
CONTRACT: DAHC20-70-C-0203
PROJ: OCU-1113A

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON NUCLEAR RADIATION
SHIELDING STUDIES.

DESCRIPTORS: (*GAMMA EMISSION, *SHIELDING),
(*RADIOACTIVE FALLOUT, FALLOUT SHELTERS),
CONCRETE, ATTENUATION, GAMMA COUNTERS, MONTE
CARLO METHOD, PROGRAMMING (COMPUTERS), CIVIL
DEFENSE SYSTEMS, NUCLEAR EXPLOSIONS
IDENTIFIERS: RASP 2 COMPUTER CODE

(U)

(U)

THE REPORT FIRST MAKES A THEORETICAL ANALYSIS OF
THE PENETRATION OF GAMMA RADIATION THROUGH A SHIELD
CONSISTING OF TWO SLABS AT RIGHT ANGLES TO ONE
ANOTHER AND THEN APPLIES THE RESULTS OF SUCH AN
ANALYSIS TO THE PROBLEM OF FALLOUT RADIATION
PENETRATION IN-AND-DOWN THROUGH THE WALLS AND FLOOR
OF A BLOCKHOUSE INTO A BASEMENT. CERTAIN
ASSUMPTIONS ARE MADE TO SIMPLIFY THE BASIC
CALCULATIONS TO BE CONSIDERED. COMPARISONS ARE
MADE WITH THEORETICAL RESULTS OF OTHER WORKERS AND
AN EFFORT IS MADE TO REPRODUCE DATA AVAILABLE FROM
EXPERIMENTAL BLOCKHOUSE WORK. DISCREPANCIES BETWEEN
RESULTS ARE DISCUSSED. COMPARISONS WITH THE
ENGINEERING MANUAL APPROACH TO OVERHEAD BARRIER
FACTOR PREDICTIONS ARE MADE. EFFECT OF WALL HEIGHT
AND STRUCTURE ECCENTRICITY ON THIS BARRIER FACTOR ARE
PREDICTED. (AUTHOR)

(U)

UNCLASSIFIED

/ZOML7

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-716 360 13/1 15/3
GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL
AMERICAN RESEARCH DIV

LIGHTING KIT.

(U)

DESCRIPTIVE NOTE: FINAL REPT.:
SEP 70 59P JAGO, ARTHUR G. IKAPIL, AJIT

L. I
REPT. NO. GARD-1508-F
CONTRACT: DAMC20-68-C-0123
PROJ: OCU-14278

UNCLASSIFIED REPORT

DESCRIPTORS: (•LIGHTING EQUIPMENT, •FALLOUT
SHELTERS), (•CIVIL DEFENSE SYSTEMS, LIGHTING
EQUIPMENT), GENERATORS, DRIVES, GEARS,
ELECTRICAL EQUIPMENT, TESTS
IDENTIFIERS: AC GENERATORS, •PEDAL POWERED
LIGHTING KITS

(U)

(U)

THE REPORT DESCRIBES THE RESEARCH, DEVELOPMENT,
FABRICATION AND TESTING OF A PEDAL-POWERED LIGHTING
KIT. THE UNIT USES A NOTCHED V-BELT
TRANSMISSION TO DRIVE AN ALTERNATOR (WITH
FLYWHEEL) AND POWER TWO 20-WATT FLUORESCENT BULBS.
IT CAN ALSO POWER INCANDESCENT LIGHTING AND OTHER
ELECTRICAL ACCESSORIES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-71. 256 5/10 15/3
IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND
ANTHROPOLOGY

SYSTEM AND PERSONAL VARIABLES AS PREDICTORS
OF INDIVIDUAL ADOPTION BEHAVIOR.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 70 133P YARBROUGH, PAUL (KLONLAN,
GERALD E. LUTZ, GENE M. I
REPT. NO. RURAL SOCIOLOGY-86
CONTRACT: DAHC20-69-C-3103

UNCLASSIFIED REPORT

DESCRIPTORS: (*BEHAVIOR, *CIVIL DEFENSE SYSTEM),
(*FALLOUT SHELTERS, BEHAVIOR), ATTITUDES,
SOCIOLOGY, REGRESSION ANALYSIS
IDENTIFIERS: COLLECTIVE PROTECTION

(U)
(U)

THE STUDY ATTEMPTS TO PREDICT INDIVIDUAL ADOPTION
BEHAVIOR RELATED TO FALLOUT SHELTER INNOVATIONS USING
SYSTEM VARIABLES AND PERSONAL VARIABLES. SYSTEM
VARIABLES INCLUDE THE GENERAL SITUATION AND CIVIL
DEFENSE AGENCY ACTIVITY. PERSONAL VARIABLES INCLUDE
INDIVIDUAL STATUS-ROLES, INDIVIDUAL GENERAL
ORIENTATIONS, AND INDIVIDUAL CIVIL DEFENSE
ORIENTATIONS. DATA IS UTILIZED FROM THE
INTEGRATED MANAGEMENT INFORMATION SYSTEM AND
THE 1968 NATIONAL CIVIL DEFENSE SURVEY.
THREE ANALYSIS PROCEDURES WERE USED IN THE
PREDICTION: ZERO-ORDER CORRELATION AND REGRESSION,
MULTI-VARIABLE CORRELATION AND REGRESSION, AND
NETWORK (PATH) ANALYSIS. EACH ANALYSIS YIELDS
ITS PARTICULAR PREDICTIONS OF INDIVIDUAL ADOPTION
BEHAVIOR. OVERALL FINDINGS INDICATE THE RELATIVELY
LARGER INFLUENCE OF PERSONAL STATUS-ROLES AND
INDIVIDUAL ORIENTATIONS IN THE PREDICTIONS COMPARED
TO OTHERS. CIVIL DEFENSE ACTIVITY IS ESPECIALLY
NON-INFLUENTIAL IN PREDICTING ADOPTION BEHAVIOR.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-718 924 5/11 15/3
MICHIGAN STATE UNIV EAST LANSING DEPT OF
COMMUNICATION

THE HOME FALLOUT PROTECTION SURVEY IN
MICHIGAN: ITS IMPACT ON THE GENERAL
PUBLIC,

(U)

APR 70 12P BERLO, DAVID K. ;
REPT. NO. HFPS-3
CONTRACT: DAMC20-67-C-0119

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON THE PUBLIC OPINION ON
SHARING HOME BASEMENTS DURING STORM OR
RADIOACTIVE FALLOUT DISASTERS.

DESCRIPTORS: (*DISASTERS, ATTITUDES);
(*SHELTERS, PUBLIC OPINION), STORMS,
RADIOACTIVE FALLOUT, CIVIL DEFENSE SYSTEMS, SOCIAL
COMMUNICATION, STATISTICAL ANALYSIS (U)
IDENTIFIERS: SHELTER OCCUPANCY, HOME BASEMENTS.
EMERGENCY HOME SHARING, INTERVIEWS (U)

THE REPORT FOCUSES ON THE RESPONSES MADE BY A
STATE-WIDE PROBABILITY SAMPLE OF MICHIGAN RESIDENTS
TO QUESTIONS DEALING WITH THEIR WILLINGNESS TO SHARE
THEIR HOME BASEMENTS--IN THE EVENT OF NATURAL
DISASTER, OR NUCLEAR ATTACK, WITH EITHER FRIENDS,
NEIGHBORS, OR STRANGERS. SUBGROUPS OF THE
POPULATION WERE STUDIED IN RESPONSE TO THESE
QUESTIONS: A WIDE VARIETY OF SUBGROUPS WERE EXAMINED
ALONG DIFFERING LEVELS OF CIVIL DEFENSE ATTITUDES AND
INFORMATION, COMMUNICATIONS WITH RESPECT TO CIVIL
DEFENSE, AND DEMOGRAPHIC FACTORS. THE FINDINGS WERE
THEN COMPARED WITH SIMILAR QUESTIONS ASKED IN OTHER
MID-WEST URBAN AND RURAL AREAS, AND IN A NATION-WIDE
PROBABILITY SAMPLE. ALL THREE SETS OF RESULTS
CONSISTENTLY SHOWED HIGH LEVELS OF PUBLIC SUPPORT FOR
HOMESHARING IN THE EVENT OF NUCLEAR ATTACK.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-719 306 13/13 15/3
STANFORD RESEARCH INST MENLO PARK CALIF

EXISTING STRUCTURES EVALUATION. PART IV.
TWO-WAY ACTION WALLS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 70 256P WIEHLE, CARL X. BOCKHOLT,
JAMES L. ;
CONTRACT: DAMC20-67-C-0136
PROJ: OGD-1154F, SRI-6300

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART J. AD-701 088.

DESCRIPTORS: (*WALLS, VULNERABILITY), (*NUCLEAR
EXPLOSION DAMAGE, BLAST), (*CIVIL DEFENSE SYSTEMS,
SHELTERS), DAMAGE ASSESSMENT,
LOADING(MECHANICS), STRUCTURAL PROPERTIES,
TRANSPARENT PANELS, REINFORCED CONCRETE, BRICK,
MATHEMATICAL MODELS, STATISTICAL ANALYSIS

(U)

IDENTIFIERS: BLAST LOADING, NFSS(NATIONAL
FALLOUT SHELTER SURVEYS), NATIONAL FALLOUT
SHELTER SURVEYS, OVERPRESSURE, WINDOWS, COMPUTER
ANALYSIS, *BLAST SHELTERS

(U)

THE OBJECTIVE OF THE INVESTIGATION WAS TO DEVELOP
AN EVALUATION PROCEDURE APPLICABLE TO EXISTING
NFSS-TYPE STRUCTURES AND PRIVATE HOMES FOR
DETERMINING THE BLAST PROTECTION AFFORDED AND THE
COST OF STRUCTURE MODIFICATIONS TO IMPROVE THE BLAST
PROTECTION. THE APPROACH ADOPTED WAS TO FORMULATE A
PROCEDURE THAT WOULD PERMIT EXAMINING THE RESPONSE OF
A STRUCTURE OVER A RANGE OF INCIDENT OVERPRESSURE
LEVELS TO DETERMINE THE PRESSURE AT WHICH FAILURE OF
THE VARIOUS ELEMENTS OCCURS. PAST EFFORTS IN THIS
PROGRAM HAVE BEEN CONCERNED WITH EXAMINING EXTERIOR
WALLS, WINDOW GLASS, AND STEEL FRAME CONNECTIONS.
THE PHASE OF THE WORK PRESENTED IN THIS REPORT
EXTENDED THE EXTERIOR WALL RESPONSE MODELS PREVIOUSLY
DEVELOPED BY INCLUDING EXTERIOR WALLS WITH TWO-WAY
ACTION AND WINDOW OPENINGS. THE EVALUATION
PROCEDURE WAS ALSO EXTENDED TO INCLUDE A PROBABILITY
DISTRIBUTION FOR EACH OF THE VARIOUS 'UNKNOWN' WALL
AND LOAD PARAMETERS. USING THE WALL EVALUATION
PROCEDURE, A LIMITED SENSITIVITY ANALYSIS WAS
PERFORMED AND A COMPARISON WAS MADE OF THE AVAILABLE
EXPERIMENTAL INFORMATION ON DYNAMICALLY LOADED WALL
ELEMENTS WITH THEORETICAL PREDICTIONS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-720 219 13/4 15/3
GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL
AMERICAN RESEARCH DIV

NON-CORRODIBLE DUAL-PURPOSE WATER
CONTAINER.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 68-FEB 70,
FEB 70 87P KAPIL, AJIT L. ;
REPT. NO. GARD-1479-F
CONTRACT: DAMC20-68-C-0123
PROJ: OGD-1433F

UNCLASSIFIED REPORT

DESCRIPTORS: (*CONTAINERS, WATER), (*FALLOUT
SHELTERS, WATER SUPPLIES), LIFE SUPPORT,
SANITARY ENGINEERING, TOILET FACILITIES,
POLYETHYLENE PLASTICS, CONFIGURATION, FIRE
RESISTANT MATERIALS, PUMPS, COSTS, TEST METHODS,
CIVIL DEFENSE SYSTEMS

(U)

IDENTIFIERS: *WATER CONTAINERS, NONCORRODIBLE
CONTAINERS, EVALUATION

(U)

THE REPORT DESCRIBES THE DESIGN, FABRICATION AND
EVALUATION OF A NON-CORRODIBLE, DUAL-PURPOSE WATER
CONTAINER FOR USE IN FALLOUT SHELTERS. THE DESIGN
ALLOWS AN EMPTY CONTAINER TO BE CONVERTED INTO A
CUMMODO FOR IN-SHELTER USE. TESTS ON PROTOTYPES
SHOW THE DESIGN MEETS ALL REQUIREMENTS ESTABLISHED
FOR SUCH A CONTAINER. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AJ-722 242 15/3 13/4
GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL
AMERICAN RESEARCH DIV

COLLAPSIBLE WATER CONTAINER KIT. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 68-NOV 69,
JAN 71 83P GORECKI, EDWARD A. /JAGO.

ARTHUR G. I
REPT. NO. GARD-1478-F
CONTRACT: UAMC20-68-C-0123
PROJ: OCD-1433E

UNCLASSIFIED REPORT

DESCRIPTORS: (CIVIL DEFENSE SYSTEMS, WATER
TANKS), (WATER TANKS, FALLOUT SHELTERS),
WATER SUPPLIES, TESTS: STEEL, PLASTICS,
EXTENDABLE STRUCTURES (U)
IDENTIFIERS: COLLAPSIBLE WATER CONTAINERS,
EVALUATION, POTABLE WATER (U)

THE REPORT DESCRIBES THE DESIGN AND TEST EVALUATION
OF THREE COLLAPSIBLE, LARGE-CAPACITY WATER CONTAINERS
FOR USE IN FALLOUT SHELTERS. A 350-GALLON, STEEL-
WALL CONTAINER WITH A POLYVINYL CHLORIDE LINER AND
NECESSARY ACCESSORIES WAS CHOSEN AS THE MOST
ACCEPTABLE DESIGN. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-722 243 15/3 15/5
GENERAL AMERICAN TRANSPORTATION CORP NILES ILL GENERAL
AMERICAN RESEARCH DIV

BUNKING SYSTEM CONCEPTS.

(U)

DESCRIPTIVE NOTE: SUMMARY OF FINAL REPT.,
DEC 70 113P RATHMANN, CARL E. :
REPT. NO. GARD-1509-F
CONTRACT: DAHC20-68-C-0123
PROJ: OCU-1427C

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, BEDDING),
(*BEDDING, *FALLOUT SHELTERS), COSTS,
VENTILATION, POPULATION, TESTS
IDENTIFIERS: *BUNK BEDS, BUNKING SYSTEMS

(U)

(U)

ECONOMIC INVESTIGATIONS OF REDUCING SHELTER COSTS
PER OCCUPANT AND INCREASING SHELTER OCCUPANCY VIA THE
INCLUSION OF BUNKING SYSTEMS ARE ITEMIZED.
(AUTHOR)

(U)

UNCLASSIFIED

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-722 856 15/3 13/13 18/6
KANSAS STATE UNIV MANHATTAN ENGINEERING EXPERIMENT
STATION

A UNIVERSITY DESIGN STUDY OF REDUCTION
FACTORS IN TYPICAL AMERICAN HOUSES WITH
FALLOUT SHELTERS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 71 68P REYNOLDS, R. S. IFAM, R.
E. ; ROBINSON, M. J. ;
REPT. NO. KEES-SR-92
CONTRACT: UAMC20-69-C-0412

UNCLASSIFIED REPORT

DESCRIPTORS: (CIVIL DEFENSE SYSTEMS, FALLOUT
SHELTERS), (SHIELDING, RADIOACTIVE FALLOUT),
(FALLOUT SHELTERS, DESIGN), SIMULATION,
RADIOACTIVE ISOTOPES, COBALT, CONCRETE,
CONSTRUCTION MATERIALS, SPECIFICATIONS, COSTS,
REGRESSION ANALYSIS

(U)

THE PURPOSE OF THIS WORK WAS TO MEASURE THE
FALLOUT-RADIATION PROTECTION PROVIDED IN A TYPICAL
RESIDENTIAL STRUCTURE BY FALLOUT SHELTERS DESIGNED BY
THE NATIONAL ASSOCIATION OF HOME BUILDERS
(NAHB). NAHB DESIGNS SPECIFIED DIMENSIONS AND
MATERIALS OF CONSTRUCTION ALONG WITH TABLES OF
EXPECTED MASS THICKNESSES. OUR CALCULATIONS
CONFIRMED THAT SHELTERS WITH WALLS AND OVERHEAD OF
THE EXPECTED MASS THICKNESSES WOULD INDEED PROVIDE
PROTECTION FACTORS OF AT LEAST 40. HOWEVER, IT WAS
FOUND THAT CONSTRUCTION ACCORDING TO MATERIALS
SPECIFICATIONS DID NOT YIELD THE EXPECTED MASS
THICKNESSES. IN SOME INSTANCES, THE SHELTERS WERE
OF OVERLY CONSERVATIVE DESIGN YIELDING PROTECTION
FACTORS AS HIGH AS 116. THIS WAS TYPICAL OF
BASEMENT SHELTERS. ON THE OTHER HAND, ABOVE-GRADE
SHELTERS WERE TYPICALLY UNDER-DESIGNED WITH
PROTECTION FACTORS AS LOW AS 20. IT IS RECOMMENDED
THAT NAHB DESIGNS BE REVISED WITH MASS THICKNESS AS
THE CONTROLLING SPECIFICATION. INSTRUCTIONS SHOULD
THEN BE GIVEN AS TO HOW THESE MASS THICKNESSES COULD
BE ACHIEVED WITH VARIOUS BUILDING MATERIALS.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-723 045 13/5 13/13 15/3
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG
MISS

DYNAMIC TESTS OF LARGE REINFORCING BAR
SPICES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.:

APR 71 183P FLATHAU, WILLIAM J. I
REPT. NO. AENES-TR-N-71-2

UNCLASSIFIED REPORT

DESCRIPTORS: (METAL JOINTS, STRUCTURAL
PROPERTIES), (REINFORCING MATERIALS, JOINING),
(SHELTERS, REINFORCED CONCRETE), BLAST,
DEFORMATION, STRAIN(MECHANICS), WELDING,
WELDS, STRESSES, TEST METHODS, CIVIL DEFENSE
SYSTEMS, NUCLEAR EXPLOSIONS

(U)

IDENTIFIERS: HARDENED INSTALLATIONS, BLAST
RESISTANT STRUCTURES

(U)

DYNAMIC TENSILE TESTS WERE CONDUCTED AT RAPID,
INTERMEDIATE, AND SLOW RATES OF STRAIN ON SPECIMENS
OF NO. 11 REINFORCING BARS OF GRADES 60 AND 75
A615 BILLET STEEL. AS-ROLLED BARS, MACHINED
BARS, BUTT-WELDED SPLICES, THERMIT SPLICES, AND
CAWELD SPLICES WERE PREPARED. THE AS-ROLLED AND
MACHINED SPECIMENS WERE TESTED PRIMARILY TO DETERMINE
THE TENSILE STRENGTH CHARACTERISTICS OF THE GRADES
60 AND 75 BARS FOR USE WHEN ASSESSING HOW EFFECTIVE
THE VARIOUS SPICED SPECIMENS WERE WHEN TESTED.
ALL TESTS WERE CONDUCTED IN A 200,000-POUND-
CAPACITY DYNAMIC LOADER. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-724 164 15/3
MICHIGAN STATE UNIV EAST LANSING DEPT OF
COMMUNICATION

THE HOME FALLOUT PROTECTION SURVEY AND
COMMUNITY SHELTER PLANS IN MICHIGAN:
THEIR IMPACT ON THE GENERAL PUBLIC. FAMILY
COMMUNICATION ABOUT CIVIL DEFENSE TOPICS:
A REPORT OF TWO PILOT STUDIES.

(U)

DESCRIPTIVE NOTE: PILOT STUDY REPT. NO. 4,
JAN 71 19P BERLO, DAVID K. JACKMAN,
DANIEL B. IERICSON, PHILIP M. I
CONTRACT: DAMC20-67-C-0119

UNCLASSIFIED REPORT

DESCRIPTORS: (CIVIL DEFENSE SYSTEMS, PUBLIC
OPINION), (FALLOUT SHELTERS, CIVIL DEFENSE
SYSTEMS), REACTION (PSYCHOLOGY), EDUCATION,
ATTITUDES, QUESTIONNAIRES, NUCLEAR RADIATION,
NUCLEAR WARFARE

(U)

IDENTIFIERS: HOME FALLOUT PROTECTION SURVEYS

(U)

THE REPORT SUMMARIZES TWO PILOT RESEARCH STUDIES
WHICH EXPLORED HOW AMERICAN FAMILIES PROCESS AND
UTILIZE CIVIL DEFENSE INFORMATION. THE FIRST STUDY
COMPARED PUBLIC REACTIONS TO COMMUNITY SHELTER
PLAN INFORMATION TO HOME FALLOUT PROTECTION
SURVEY INFORMATION AND FOUND THEM SIMILAR IN
AWARENESS, PROCESSING, USE IN PLANNING, AND
EVALUATION OF THE INFORMATION. THE STRENGTHS AND
WEAKNESS OF CSP INFORMATION ARE NOTED. THE
SECOND STUDY EXAMINED HOW A SAMPLE OF 30 LOWER AND
MIDDLE CLASS COUPLES INTERACTED ABOUT CIVIL DEFENSE
TOPICS. THE FINDINGS INDICATED NUCLEAR HOME
ASSIGNMENT FOR CIVIL DEFENSE IN THE FAMILIES, LOW
PRIORITY TO ITS IMPORTANCE, BUT USE OF THE SAME BASIC
INTERACTION STYLE IN DISCUSSING IT. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-724 710 13/13 18/3 15/3
URS RESEARCH CO SAN MATEO CALIF

ANALYSIS OF THE EFFECT OF SHELTER OPENINGS ON
BLAST PROTECTION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 70 197P MELICHAR, JOSEPH F. I
REPT. NO. URS-773-6
CONTRACT: DANC20-67-C-0136

UNCLASSIFIED REPORT

DESCRIPTORS: (*FALLOUT SHELTERS, BLAST), (*CIVIL
DEFENSE SYSTEMS, NUCLEAR EXPLOSIONS), NUCLEAR
EXPLOSION DAMAGE, SURVIVAL, SHELTERS, DESIGN,
MOVEMENTS, DAMAGE ASSESSMENT, KILL PROBABILITIES (U)
IDENTIFIERS: *BLAST SLANTED SHELTERS,
OPENINGS (U)

THE TRANSLATION OF SHELTERED PERSONS IN BLAST
SLANTED BASEMENT CIVIL DEFENSE SHELTERS WAS STUDIED.
ANALYTICAL AND NUMERICAL AND EXPERIMENTAL
SIMULATIONS WERE USED TO DEVELOP SUPPORTIVE DATA.
JUDGMENTS ON TRANSLATION POTENTIAL ARE PRESENTED
AND THE DIFFICULTIES OF MAKING PREDICTIONS FOR THE
GENERAL CASE ARE SUMMARIZED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-724 727 15/3
IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND
ANTHROPOLOGY

THE HOME FALLOUT PROTECTION SURVEY AND
RESULTING CHANGES IN SHELTER ADOPTION.
SUMMARY REPORT.

(U)

DESCRIPTIVE NOTE: FINAL REPT.:
SEP 70 56P YARBROUGH, PAUL ; KLONLAN,
GERALD E. ;
REPT. NO. RURAL SOCIOLOGY-85A
CONTRACT: DAHC20-67-C-0123
PROJ: OCO-4811E

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON SOCIOLOGICAL STUDIES IN
CIVIL DEFENSE. PREPARED IN COOPERATION WITH IOWA
AGRICULTURAL AND HOME ECONOMICS EXPERIMENT
STATION. PROJECT 1529. SEE ALSO APPENDICES, AD-
724 726.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS; ATTITUDES);
QUESTIONNAIRES; REVIEWS; IOWA
IDENTIFIERS: SURVEYS; HOME FALLOUT PROTECTION

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THE STUDY INVESTIGATED RESPONSES MADE BY ADULTS IN
DES MOINES, IOWA, TO THE HOME FALLOUT
PROTECTION SURVEY (HFPS). A PANEL OF 308
PERSONS WERE INTERVIEWED BEFORE AND AFTER HFPS.
THE AUDIENCE WAS FOUND TO HAVE RESPONDED QUITE
FAVORABLY IN TERMS OF ATTENTION GIVEN HFPS
MESSAGES; ATTITUDINAL ACCEPTANCE OF THE PROGRAM AND
CHANGE IN ADOPTION OF PUBLIC AND HOME FALLOUT
SHELTERS. OVER 66 PERCENT WERE AWARE OF THE
PROGRAM AND NEARLY 30 PERCENT READ AT LEAST SOME OF
THE HFPS BOOKLET. COMBINED ADOPTION OF HOME AND
PUBLIC SHELTERS INCREASED FROM 26 PERCENT OF ALL
HOUSEHOLDS BEFORE HFPS TO 44 PERCENT AFTERWARDS.
HOWEVER, COMPREHENSION OF SUCH KEY CONCEPTS AS
'PROTECTION FACTOR' AND 'ADDED WEIGHT' WAS QUITE LOW
AND CONSTITUTED ONE OF THE WEAKEST LINKS IN THE
PROGRAM. THE DISPOSITIONAL MODEL DID NOT HOLD WELL
IN PREDICTING ATTENTION TO HFPS, BUT DID HOLD IN
PREDICTING COMPREHENSION AND ACCEPTANCE RESPONSES.
THE USE OF PANEL METHODOLOGY WAS FOUND TO
CONTRIBUTE SIGNIFICANT BIAS TO THE OBSERVED RESPONSE
TO HFPS. (AUTHOR)

(U)

UNCLASSIFIED

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-724 728 15/3
IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND
ANTHROPOLOGY

THE HOME FALLOUT PROTECTION SURVEY AND
RESULTING CHANGES IN SHELTER ADOPTION.
APPENDICES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 70 378P YARBROUGH, PAUL ; KLONGLAN,
GERALD E. I
REPT. NO. RURAL SOCIOLOGY-858
CONTRACT: DAMC20-67-C-0123
PROJ: OCD-4811E

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON SOCIOLOGICAL STUDIES IN
CIVIL DEFENSE. PREPARED IN COOPERATION WITH IOWA
AGRICULTURAL EXPERIMENT STATION, PROJECT 1529. SEE
ALSO SUMMARY REPORT, AD-724 727.

DESCRIPTORS: (CIVIL DEFENSE SYSTEMS, ATTITUDES);
(FALLOUT SHELTERS, CIVIL DEFENSE SYSTEMS);
QUESTIONNAIRES, REVIEWS, IOWA
IDENTIFIERS: SURVEYS, HOME FALLOUT PROTECTION

(U)

(U)

THE STUDY INVESTIGATED RESPONSES MADE BY ADULTS IN
DES MOINES, IOWA, TO THE HOME FALLOUT
PROTECTION SURVEY (HFPS). A PANEL OF 308
PERSONS WERE INTERVIEWED BEFORE AND AFTER HFPS.
THE AUDIENCE WAS FOUND TO HAVE RESPONDED QUITE
FAVORABLY IN TERMS OF ATTENTION GIVEN HFPS
MESSAGES, ATTITUDINAL ACCEPTANCE OF THE PROGRAM AND
CHANGE IN ADOPTION OF PUBLIC AND HOME FALLOUT
SHELTERS. THIS VOLUME PRESENTS APPENDICES GIVING
THE DETAILED METHODOLOGY AND ANALYSIS OF EACH
VARIABLE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-726 456 15/2 5/10
AMERICAN INSTITUTES FOR RESEARCH PITTSBURGH PA

AN EXPLORATORY STUDY TO DETERMINE THE
EFFECTS OF PHYSICAL HAZARD ON SHELTER
MANAGEMENT BEHAVIOR.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1969-1970.
APR 71 82P SMITH, ROBERT W. COLLINS.
ROBERT A. IMEAGLEY, DONALD E. I
REPT. NO. AIR-77802-4/71-FR
CONTRACT: DAHC20-68-C-0122

UNCLASSIFIED REPORT

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, FALLOUT
SHELTERS), (*BEHAVIOR, THREAT EVALUATION),
(*FALLOUT SHELTERS, *MANAGEMENT ENGINEERING),
PERFORMANCE(HUMAN), REACTION(PSYCHOLOGY),
STRESS(PSYCHOLOGY), ADJUSTMENT(PSYCHOLOGY),
ANXIETY

IDENTIFIERS: THREAT, MANAGEMENT PERFORMANCE

(U)

(U)

THE OBJECTIVE OF THE STUDY WAS TO GENERATE A
PERCEPTION OF ENVIRONMENTAL THREAT IN SUBJECTS UNDER
CONTROLLED CONDITIONS AND TO ASSESS ITS EFFECT ON
PERFORMANCE THAT COULD BE RELATED TO FALLOUT SHELTER
MANAGEMENT RESPONSIBILITIES. OF THE TEN TEST
SUBJECTS, FIVE APPEARED TO PERCEIVE THREAT AS
EVIDENCED BY NONCOMMITTAL REACTIONS TO CONCERNS
EXPRESSED BY THEIR COMPANIONS. OVERT SYMPTOMS OF
ANXIETY, RELATIVELY FREQUENT ATTEMPTS TO COMMUNICATE
WITH THE RESEARCH STAFF, AND SUBSEQUENT VERBAL
ACKNOWLEDGEMENT OF PERCEIVED THREAT. CLEAR
RELATIONSHIPS EXISTED BETWEEN THE PERCEPTION OF
THREAT AND MANAGEMENT PERFORMANCE, PARTICULARLY IN
THE AREA OF SOCIAL BEHAVIOR. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-726 965 6/8 15/3
GEORGIA UNIV EXPERIMENT DIV OF FOOD SCIENCE

STORAGE STABILITY OF CIVIL DEFENSE SHELTER
RATIONS. (U)

DESCRIPTIVE NOTE: FINAL SUMMARY REPT. (PART 1), 1
JUL 69-30 JUN 71,
MAY 71 131P CECIL SAM R. I
REPT. NO. TR-153-9-FS
CONTRACT: DAHC20-69-C-0415
PROJ: OCD-1312C, UGA-01-0053

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO ANNUAL REPT. NO. 8 DATED
JUN 70, AD-712 365. SUMMARY INSERTED.

DESCRIPTORS: (FOOD, STORAGE), (FALLOUT
SHELTERS, FOOD), CIVIL DEFENSE SYSTEMS, CEREALS,
CARBOHYDRATES, STABILITY, TEMPERATURE, MOISTURE,
CONTAINERS, PH, ODORS, ACCEPTABILITY (U)
IDENTIFIERS: SHELTER RATIONS, FLAVOR (U)

THIS IS THE FINAL SUMMARY REPORT IN A STUDY OF THE
STABILITY OF REPRESENTATIVE TYPES OF CIVIL
DEFENSE SHELTER FOODS AND THEIR CONTAINERS WHEN
STORED FOR EXTENDED PERIODS. THE PURPOSE OF THE
STUDY WAS TO MAINTAIN CONTROLLED STORAGE CONDITIONS
COVERING THE RANGE OF CONDITIONS LIKELY TO EXIST IN
WAREHOUSES AND SHELTERS IN WHICH, BEGINNING IN 1962,
LARGE QUANTITIES OF FOOD WERE STORED UNDER THE
CIVIL DEFENSE PROGRAM. THESE INCLUDED TYPES
OF FOOD NOT PREVIOUSLY PROCURED, REPRESENTING NEW
FORMULATIONS, PROCESSES AND CONTAINERS ON WHICH
LITTLE OR NO LONG-TERM STORAGE INFORMATION WAS
AVAILABLE. DURING THE COURSE OF THE STUDY, SAMPLES
OF RATIONS WERE DRAWN FROM VARIOUS ESTABLISHED
SHELTERS AND STORAGE DEPOTS FOR COMPARISONS WITH THE
ITEMS HELD IN CONTROLLED STORAGE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AJ-728 139 15/6 15/3
INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA PROGRAM
ANALYSIS DIV

A SENSITIVITY ANALYSIS OF URBAN BLAST
FATALITY CALCULATIONS.

(U)

DESCRIPTIVE NOTE: RESEARCH PAPER,
JAN 71 216P SCHMIDT, LEO A. I
REPT. NO. RP-P-762
CONTRACT: DAHC20-70-C-0287

UNCLASSIFIED REPORT

DESCRIPTORS: (*SHELTERS, VULNERABILITY),
(*NUCLEAR EXPLOSION DAMAGE, *MATHEMATICAL MODELS),
(*URBAN AREAS, *KILL PROBABILITIES), (*NUCLEAR
WARFARE, URBAN AREAS), CASUALTIES, SURVIVAL,
PROGRAMMING (COMPUTERS), STATISTICAL
DISTRIBUTIONS, CORRELATION TECHNIQUES, MONTE CARLO
METHOD, CIVIL DEFENSE SYSTEMS, MATHEMATICAL
PROGRAMMING, CURVE FITTING
IDENTIFIERS: *SENSITIVITY ANALYSIS

(U)

(U)

THE PAPER ATTEMPTS TO PROVIDE A BASIS FOR IMPROVING
THE ANALYSIS OF STRATEGIC WARFARE BY STUDYING IN
DETAIL THE SENSITIVITY OF URBAN BLAST FATALITY
CALCULATIONS. IT EXAMINES THE EFFECTS OF VARIOUS
ASSUMPTIONS ON THE RESULTING ESTIMATES OF FATALITIES
AND ATTEMPTS TO UNCOVER AREAS WHERE ERRORS ARE MADE.
TWO BASIC TOOLS ARE USED: A COMPUTER PROGRAM THAT
COMPUTES SURVIVORS IN A CITY UNDER AN OPTIMIZED
ATTACK WITH A GIVEN NUMBER OF WEAPONS, AND A QUASI-
ANALYTICAL DAMAGE LAW--THE SQUAKE ROOT DAMAGE
LAW. THE COMPUTER PROGRAM IS USED TO STUDY SUCH
EFFECTS AS SENSITIVITY OF FATALITIES TO WEAPON YIELD,
RELIABILITY, OR TARGET VULNERABILITY. AND THE
SQUAKE ROOT DAMAGE LAW IS USED TO CORRELATE
THE RESULTS. A FEW METROPOLITAN AREAS ARE STUDIED
IN DETAIL. WHERE POSSIBLE A RATIONALE IS DEVELOPED
TO EXPLAIN THE RESULTS OBTAINED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-728 849 15/3
IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND
ANTHROPOLOGY

PUBLIC RESPONSE TO COMMUNITY SHELTER
PLANNING: DES MOINES AND POLK COUNTY,
IOWA. SUMMARY REPORT.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 71 50P YARBROUGH, PAUL IKLONGLAN,
GERALD E. IPADGITT, STEVE ;
REPT. NO. SOCIOLOGY-87A
CONTRACT: DAHC20-69-C-0103
PROJ: OCD-4811G

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON SOCIOLOGICAL STUDIES IN
CIVIL DEFENSE. PREPARED IN COOPERATION WITH IOWA
AGRICULTURAL AND HOME ECONOMICS EXPERIMENT
STATION. PROJECT 1754. SEE ALSO APPENDICES. AD-
728 849.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, ATTITUDES),
(*FALLOUT SHELTERS, *ATTITUDES), QUESTIONNAIRES,
SOCIOLOGY

(U)

THE STUDY INVESTIGATED RESPONSES MADE BY ADULTS IN
DES MOINES, IOWA, TO A COMMUNITY SHELTER
PLAN (CSP) AND ALSO TO AN OFFICE OF CIVIL
DEFENSE BOOKLET ENTITLED, 'IN TIME OF
EMERGENCY' (M-14). A TOTAL OF 938 INTERVIEWS
WERE COMPLETED DURING THE STUDY. THE DETAILED
METHODOLOGY AND ANALYSIS FOR EACH VARIABLE
INVESTIGATED, IS PRESENTED IN A SEPARATE VOLUME--SEE
AD-728 849. (AUTHOR)

(U)

UNCLASSIFIED

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-728 849 15/3
IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND
ANTHROPOLOGY

PUBLIC RESPONSE TO COMMUNITY SHELTER
PLANNING: DES MOINES AND POLK COUNTY,
IOWA. APPENDICES.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 71 344P YARBROUGH, PAUL (KLONLAN,
GERALD E. PADGITT, STEVE ;
REPT. NO. SOCIOLOGY-878
CONTRACT: DAHC20-69-C-0103
PROJ: OGD-4811G

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON SOCIOLOGICAL STUDIES IN
CIVIL DEFENSE, PREPARED IN COOPERATION WITH IOWA
AGRICULTURAL AND HOME ECONOMICS EXPERIMENT
STATION, PROJECT 1754. SEE ALSO SUMMARY REPORT,
AD-728 848.

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, ATTITUDES),
(*FALLOUT SHELTERS, *ATTITUDES), QUESTIONNAIRES,
SOCIOLOGY

(U)

THE STUDY INVESTIGATED RESPONSES MADE BY ADULTS IN
DES MOINES, IOWA, TO THE COMMUNITY SHELTER
PLAN (CSP). A TOTAL OF 938 INTERVIEWS WERE
COMPLETED DURING THE STUDY. THIS INCLUDED ADEQUATE
CONTROL SAMPLES BEFORE AND AFTER PUBLICATION OF CSP
AS WELL AS PANELS. ONE PANEL WAS INITIATED BEFORE
CSP, OTHER WERE CONTINUED FROM THE RESEARCHERS'
EARLIER HOME FALLOUT PROTECTION SURVEY STUDY.
THE CSP MESSAGE INCLUDED A PLAN ALLOCATING PUBLIC
FALLOUT SHELTERS TO RESIDENTS BASED ON PLACE OF
RESIDENCE. IT WAS PUBLISHED IN THE FORM OF A 12-
PAGE SUNDAY NEWSPAPER ADVERTISING SUPPLEMENT.
ATTENTION GIVEN THE MESSAGE WAS ABOUT AVERAGE WITH
SIMILAR SUPPLEMENTS (SLIGHTLY LESS THAN HALF OF THE
TOTAL AUDIENCE), BUT COMPREHENSION OF THE PLAN WAS
LOW. ONLY SEVEN PERCENT OF OUR CONTROL SAMPLE
COULD RECALL THE NAME OR LOCATION OF A SHELTER
ALLOCATED FOR HIS USE AND ONLY FOUR PERCENT COULD
RECALL HOW THEY WERE INSTRUCTED TO TRAVEL TO THE
SHELTER. ACCEPTANCE RESPONSES WERE LOW. A SLIGHT
INCREASE WAS OBSERVED IN LEVEL OF KNOWLEDGE ABOUT A
LOCAL CIVIL DEFENSE PROGRAM AND IN THE ANTICIPATORY
DECISION TO CONCURRENTLY ADOPT PUBLIC OR HOME SHELTER
PROTECTION ALTERNATIVES. THE DISPOSITIONAL MODEL
DID NOT HOLD WELL IN PREDICTING ATTENTION TO CSP, (U)

34
UNCLASSIFIED

/ZOML7

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-732 359 13/13 15/3 18/3
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF

DESIGN PROCEDURES FOR SHELTER ENTRANCE
STRUCTURES TO RESIST BLAST OVERPRESSURE AND
RADIATION EFFECTS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NOV 69-JUN 70,
SEP 71 161P FERRITTO, JOHN M. ;
REPT. NO. NCEL-TR-736
PNQJ: YF38.534.006.001.01

UNCLASSIFIED REPORT

DESCRIPTORS: (DOORS, STRUCTURAL PROPERTIES),
(SHELTERS, NUCLEAR EXPLOSIONS), (CIVIL DEFENSE
SYSTEMS, SHELTERS), LOADING(MECHANICS),
PRESSURE, RADIATION HAZARDS, SHIELDING,
CONCRETE (U)
IDENTIFIERS: OVERPRESSURE, HARDENED ENTRANCE
STRUCTURES, PLUMBBOB OPERATION (U)

THE REPORT PRESENTS ENGINEERING METHODS TO DESIGN
HARDENED ENTRANCE STRUCTURES OF NUCLEAR WARFARE
SHELTERS TO RESIST THE EFFECTS OF BOTH BLAST
OVERPRESSURE AND RADIATION. THE DESIGN
OVERPRESSURE LEVEL CAN BE DETERMINED FROM PROBABILITY
DATA, AND THE ENTRANCE CAN BE SIZED TO ACCOMMODATE
THE REQUIRED TRAFFIC FLOW. METHODS ARE PRESENTED
TO CALCULATE THE REFLECTED PRESSURE ON THE ENTRANCE
DOOR FOR VARIOUS ENTRANCE CONFIGURATIONS. PROCEDURES
ARE GIVEN TO DESIGN THE DOOR STRUCTURALLY TO RESIST
THE APPLIED LOADS. RADIATION ATTENUATION METHODS
ARE PRESENTED TO EVALUATE THE REQUIREMENT FOR
ADDITIONAL SHIELDING. VARIOUS MATERIALS ARE
CONSIDERED TO PROVIDE MORE EFFECTIVE ECONOMICAL
SHIELDS. SUMMARIES OF DOOR TESTS PERFORMED IN THE
OPERATION PLUMBBOB TEST SERIES ARE GIVEN.
(AUTHOR) (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AD-732 360 13/13 15/3 18/3
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF

COST-OPTIMIZATION STUDY OF SHELTER ENTRANCE
STRUCTURES TO RESIST BLAST OVERPRESSURE AND
RADIATION EFFECTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 69-DEC 70,
SEP 71 36P FERRITTO, JOHN M. I
REPT. NO. NCEL-TR-737
PROJ: YF38.534.001.01.011

UNCLASSIFIED REPORT

DESCRIPTORS: (DOORS, STRUCTURAL PROPERTIES),
(SHELTERS, NUCLEAR EXPLOSIONS), (CIVIL DEFENSE
SYSTEMS, SHELTERS), PRESSURE, PROTECTION, COST
EFFECTIVENESS, STEEL, REINFORCED CONCRETE,
PROGRAMMING (COMPUTERS), RADIATION HAZARDS
IDENTIFIERS: OVERPRESSURE, BLAST DOORS, BLAST
RESISTANT SHELTERS

(U)

(U)

THE BLAST DOOR IS AN IMPORTANT PART OF THE NUCLEAR
BLAST RESISTANT SHELTER. THE BLAST DOOR MUST BE A
MOVABLE ELEMENT REQUIRING A SUPPORT SYSTEM WITH A
COST VERY SENSITIVE TO THE WEIGHT AND DIMENSIONS OF
THE DOOR. A COMPUTER PROGRAM HAS BEEN DEVELOPED
AND IS AVAILABLE TO STUDY 96 DOOR-ENTRANCE
COMBINATIONS FOR VARIOUS DOOR SIZES AND RADIATION-
OVERPRESSURE LEVELS. THE RELATIVE COSTS OF VARIOUS
DOORS, ENTRANCES, AND DOOR-ENTRANCE COMBINATIONS HAVE
BEEN EVALUATED TO OBTAIN THE MOST COST-EFFECTIVE
COMBINATIONS. STEEL TENSION MEMBRANE DOORS AND
REINFORCED CONCRETE SLAB DOORS ARE THE MOST
ECONOMICAL. AERODYNAMIC TRIANGULAR OBSTRUCTIONS
PLACED IN FRONT OF A DOOR, SLOPED DOORS, AND
UNPROTECTED DOORS ARE THE MOST COST-EFFECTIVE.
(AUMOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOML7

AJ-732 362 13/13 15/3 18/3
NAVAL CIVIL ENGINEERING LAB PORT HUENEME CALIF

USE OF AN AERODYNAMIC OBSTRUCTION TO SHIELD A
BLAST DOOR--RESULTS OF AN EXPERIMENTAL
MODEL TEST.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 70-APR 71,
OCT 71 34P FERRITTO, J. M. ;
REPT. NO. NCEL-TR-739
PROJ: YF38-534-001-01-011

UNCLASSIFIED REPORT

DESCRIPTORS: (*REVELMENTS, EFFECTIVENESS),
(*DOORS, BLAST), (*SHELTERS, NUCLEAR
EXPLOSIONS), CIVIL DEFENSE SYSTEMS, PROTECTION,
AERODYNAMIC CONFIGURATIONS, PRISMATIC BODIES,
SHIELDING, MODELS(SIMULATIONS), TEST
METHODS

(U)

IDENTIFIERS: *BLAST RESISTANT STRUCTURES, *BLAST
DOORS

(U)

TRIANGULAR PRISMATIC AERODYNAMIC OBSTRUCTIONS CAN
BE USED TO SHIELD A BLAST DOOR. THE OBJECTIVES OF
THIS PROJECT WERE TO EVALUATE THE PROTECTION AFFORDED
BY AN OBSTRUCTION AND TO DETERMINE THE RELATIVE WIDTH
OF OBSTRUCTION REQUIRED TO PROTECT A GIVEN WIDTH OF
ENTRANCE. A STUDY WAS PERFORMED FROM WHICH
SIMILITUDE RELATIONSHIPS WERE DEVELOPED. A SERIES
OF TESTS WAS CONDUCTED IN WHICH A PROTECTED AND AN
UNPROTECTED MODEL STRUCTURE WERE SUBJECTED TO BLAST
WAVES FROM EXPLOSIVE CHARGES. A 45-DEGREE
TRIANGULAR PRISMATIC OBSTRUCTION WAS USED TO SHIELD
THE PROTECTED STRUCTURE. FIFTEEN VARIATIONS OF
WIDTH AND POSITION OF OBSTRUCTION WERE EVALUATED.
RESULTS SHOW THAT AT THE 100-PSI OVERPRESSURE LEVEL
AN OBSTRUCTION 1 DOOR-HEIGHT HIGH AND 2 DOOR-WIDTHS
WIDE PLACED FROM 1 TO 2 DOOR-HEIGHTS AWAY FROM A
STRUCTURE CAN REDUCE THE PEAK REFLECTED PRESSURE BY
SUB. (AUTHOR)

(U)

UNCLASSIFIED

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZONL7

AJ-732 514 13/13 15/3
AMERICAN INSTITUTES FOR RESEARCH PITTSBURGH PA

MODEL LARGE INDIVIDUAL SHELTER PLANS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL 70-30 SEP 71:
JUL 71 49P COLLINS, ROBERT A.; IMANN,
SHEILA B. ;
REPT. NO. AIR-77804-7/71-FR
CONTRACT: DAMC20-68-C-0122
PROJ: OCU-1519F

UNCLASSIFIED REPORT

DESCRIPTORS: (*SHELTERS, *CIVIL DEFENSE SYSTEMS),
MANAGEMENT PLANNING, PENNSYLVANIA
IDENTIFIERS: PITTSBURGH(PENNSYLVANIA)

(U)

(U)

THE GOALS OF THE PROJECT WERE TO DEVELOP AN
INDIVIDUAL SHELTER PLAN (ISP) FOR OPERATIONS WITHIN
THE LARGE SHELTER, AND A REPORT DESCRIPTIVE OF THE
PROCESSES OF PLAN DEVELOPMENT. A 'MODEL' STRUCTURE,
SATISFYING THE CRITERIA DESCRIPTIVE OF 'LARGE'
SHELTERS WAS SELECTED. THIS BUILDING WAS SURVEYED
IN TERMS OF STRUCTURE, SUPPLIES, FACILITIES, AND
EQUIPMENT PERTINENT TO ITS FUNCTION AS A SHELTER.
UTILIZING THIS INFORMATION, AND LEVELS OF FIRE AND
RADIATION AS ENVIRONMENTAL DESCRIPTORS, SHELTER
MANAGEMENT ACTIONS WERE GENERATED FOR CRITICAL
SHELTER SERVICES. THESE ACTIONS WERE FORMATTED IN
A SMALL FLIP CHART ARRANGED FOR EASY ACCESS.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOML7

AD-733 343 15/3 13/13
STANFORD RESEARCH INST MENLO PARK CALIF

EXISTING STRUCTURES EVALUATION. PART V:
APPLICATIONS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

JUL 71 103P WHELE, CARL K. ROCKHOLT,

JAMES L. I

CONTRACT: DAMC20-67-C-0136

PROJ: OGD-1154F, SKI-630U

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART 4, AD-719 106.

DESCRIPTORS: (CIVIL DEFENSE SYSTEMS, SHELTERS),
(HALLS, VULNERABILITY), (NUCLEAR EXPLOSION
DAMAGE, BUILDINGS), PROTECTION, PREDICTIONS,
STRUCTURES, LOADING(MECHANICS), MATHEMATICAL
MODELS, GLASS, STEEL, REINFORCED CONCRETE,
SHELTERS

(U)

IDENTIFIERS: PRIVATE RESIDENCES, BLAST PROTECTION,
EVALUATION, OVERPRESSURE, COLLAPSE-OVERPRESSURE

(U)

THE OBJECTIVE OF THE OVERALL RESEARCH PROGRAM IS TO
DEVELOP AN EVALUATION PROCEDURE FOR DETERMINING THE
BLAST PROTECTION AFFORDED BY EXISTING (NATIONAL
FALLOUT SHELTER SURVEYS)-TYPE STRUCTURES AND
PRIVATE RESIDENCES. THE PURPOSE OF THE APPLICATION
PHASE OF THE RESEARCH WAS TO USE THE INTERIM
EVALUATION TECHNIQUE TO PREDICT THE DAMAGE TO ACTUAL
NATIONAL FALLOUT SHELTER SURVEYS STRUCTURES.
PREVIOUSLY DEVELOPED MATHEMATICAL MODELS FOR
EXTERIOR WALLS WERE USED TO PREDICT THE COLLAPSE
OVERPRESSURE FOR SELECTED STRUCTURES. THE REPORT
PRESENTS THE RESULTS OF THE DYNAMIC ANALYSIS OF THE
EXTERIOR WALLS OF ONE STRUCTURE LOCATED ON THE
STANFORD UNIVERSITY CAMPUS, AND FIVE STRUCTURES
LOCATED IN DETROIT, MICHIGAN. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /40ML7

AD-733 944 8/13 13/13 15/3
NATIONAL BUREAU OF STANDARDS WASHINGTON D C BUILDING
RESEARCH DIV

EARTH TEMPERATURES BENEATH FIVE DIFFERENT
SURFACES.

(U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 69-FEB 70.
FEB 71 146P KUSUDA, T. ;
PROJ: NBS-4212436, OCD-1211A
MONITOR: NBS 10373

UNCLASSIFIED REPORT

DESCRIPTORS: (*SOILS; TEMPERATURE) (*FALLOUT
SHELTERS; THERMAL PROPERTIES); HEAT TRANSFER,
UNDERGROUND STRUCTURES, DESIGN, MATHEMATICAL
PREDICTION, MEASUREMENT, MOISTURE, SURFACE
TEMPERATURES, PROBES, CIVIL DEFENSE SYSTEMS,
THERMOCOUPLES, GRASSES, SOLAR RADIATION,
PAVEMENTS, TABLES
IDENTIFIERS: SOIL PROPERTIES, SOIL MOISTURE

(U)

(U)

THE REPORT COVERS THE EXPERIMENTAL EFFORT OF
MEASURING, PROCESSING AND ANALYZING EARTH TEMPERATURE
DATA BENEATH FIVE DIFFERENT SURFACE. SINCE THE
INSTRUMENTATION AND DATA PROCESSING PHASES OF THE
ENDAVOR HAVE BEEN DESCRIBED IN THE PREVIOUS NBS
REPORT 10223 ENTITLED 'AUTOMATED EARTH
TEMPERATURE STATION', ONLY THE ANALYSIS OF THE
DATA IS GIVEN IN THIS REPORT. ANNUAL AND TYPICAL
DAILY PLOTS OF EARTH TEMPERATURE UNDER BLACK, WHITE,
BARE, SHORT GRASS, AND LONG GRASS SURFACES ARE
PRESENTED TOGETHER WITH THE SURFACE WEATHER
CONDITIONS AND SOIL MOISTURE CONTENT. (AUTHOR)

(U)

UNCLASSIFIED

CORPORATE AUTHOR - MONITORING AGENCY

*AMERICAN INSTITUTES FOR RESEARCH
PITTSBURGH PA

AIR-77802-4/71-FR
AN EXPLORATORY STUDY TO
DETERMINE THE EFFECTS OF PHYSICAL
HAZARD ON SHELTER MANAGEMENT
BEHAVIOR.
AD-726 456

AIR-77804-7/71-FR
MODEL LARGE INDIVIDUAL SHELTER
PLANS.
AD-732 514

*APPLIED PARKING TECHNIQUES INC RESTON
VA

APT-1170
SHELTER POTENTIAL IN PARKING
GARAGES.
AD-715 416

*ARMY ENGINEER WATERWAYS EXPERIMENT
STATION VICKSBURG MISS

AEWES-TR-N-71-2
DYNAMIC TESTS OF LARGE
REINFORCING BAR SPLICES.
AD-723 045

*DEFENSE DOCUMENTATION CENTER
ALEXANDRIA VA

DDC-TAS-70-36-1
CIVIL DEFENSE SYSTEMS:
SHELTERS. VOLUME I.
AD-704 500

*GENERAL AMERICAN TRANSPORTATION CORP
NILES ILL GENERAL AMERICAN
RESEARCH DIV

GARD-1476-1-F
AIR DISTRIBUTION IN SHELTERS
DUE TO KEARNY PUMPS AND PEDAL
VENTILATORS.
AD-713 405

GARD-1478-F
COLLAPSIBLE WATER CONTAINER

KIT.
AD-722 242

GARD-1479-F
NON-CORRODIBLE DUAL-PURPOSE
WATER CONTAINER.
AD-720 219

GARD-1480-F
SHELTER OCCUPANCY STUDIES OF
VENTILATOR UTILIZATION.
AD-714 308

GARD-1508-F
LIGHTING KIT.
AD-716 360

GARD-1509-F
BUNKING SYSTEM CONCEPTS.
AD-722 243

*GEORGIA EXPERIMENT STATION
EXPERIMENT

153-VIII-GES
STORAGE STABILITY OF CIVIL
DEFENSE SHELTER RATIONS.
AD-712 365

*GEORGIA UNIV EXPERIMENT DIV OF FOOD
SCIENCE

TR-153-9-FS
STORAGE STABILITY OF CIVIL
DEFENSE SHELTER RATIONS.
AD-726 965

*IIT RESEARCH INST CHICAGO ILL
FIRE LABORATORY TESTS. PHASE
I.
AD-713 017

IITRI-J6151-FR
DISTRIBUTION OF SLANTABLE
CONSTRUCTION.
AD-705 387

*ILLINOIS UNIV URBANA
NRSS-14

INS-NAV

UNCLASSIFIED

A STUDY OF THE PENETRATION OF
GAMMA RADIATION THROUGH THIN SLABS
ORIENTED AT RIGHT ANGLES TO EACH
OTHER.

AD-715 422

*INSTITUTE FOR DEFENSE ANALYSES
ARLINGTON VA PROGRAM ANALYSIS DIV

RP-P-762

A SENSITIVITY ANALYSIS OF URBAN
BLAST FATALITY CALCULATIONS.

AD-723 139

*IOWA STATE UNIV AMES DEPT OF
SOCIOLOGY AND ANTHROPOLOGY

RURAL SOCIOLOGY-81

DIFFUSION OF FALLOUT SHELTER
INNOVATIONS. A STUDY OF PUBLIC AND
HOME FALLOUT SHELTER ADOPTION IN
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13. ABSTRACT <p>This bibliography -- one in a series on Civil Defense Systems -- contains a compilation of references on Civil Defense Systems: Shelters. References included cover such topics as fallout structure evaluation; individual shelter plans for operations within the large shelter; design procedures for shelter entrance structures to resist blast overpressure and radiation effects; air distribution in shelters; storage stability of civil defense shelter rations, etc. Entries were processed into the AD data bank during the period January 1970 through January 1972. This volume updates an earlier bibliography, AD-704 500.</p> <p>Corporate Author-Monitoring Agency, Subject, Title, Contract, and Report Number Indexes are included.</p>			

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